Solving The Harmonic Problems Produced From The Use Of Adjustable Speed Drives In Industrial Oil Pumping Field

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Summary

This paper investigates the application of different ASD models, 6-pulse, 12-pulse, and 18-pulse, in offshore oil field industry. The paper studies the harmonic distortion levels produced by each type and checks which one violates the IEEE-519 limits. The study considers the worst configuration of the system, that is when only one main transformer (50 MVA 115-13.8 kV) is supplying the whole system. A frequency scan analysis is conducted to study the effect of the submarine cables shunt capacitance in introducing resonance in the system. The effect of phase shift of the transformer is investigated and used as a method to reduce the harmonic distortion.